

REMARKS

Status of Claims:

Claims 9 and 10 are cancelled. Thus, claims 1-8 are present for examination. Independent claim 1 has been amended with a feature similar to a feature that was previously in dependent claim 9. Independent claim 5 has been amended with a feature similar to a feature that was previously in dependent claim 10.

Claim Rejections:

Claims 1, 5, 6, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art (AAPA) in view of Cha et al. (U.S. Patent No. 6,486,933 B1) (hereinafter Cha), Choi et al. (U.S. Patent No. 6,429,918 B1) (hereinafter Choi), and Shimada et al. (U.S. Patent No. 5,870,157) (hereinafter Shimada).

Claims 2-4 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA, Cha, Choi, and Shimada, in view of Lin et al. (U.S. Patent No. 6,757,031 B2) (hereinafter Lin).

Claims 9 and 10 are cancelled. With respect to claims 1-8, as amended, the rejections are respectfully traversed.

Independent claim 1, as amended, recites an active matrix type liquid crystal display device comprising:

“a pair of substrates;

a liquid crystal sealed between said pair of substrates;

a plurality of data lines and a plurality of scanning lines which are arranged so as to intersect each other on one surface of a first of said pair of substrates;

a switching element having an electric current path, one end of which is connected to a corresponding one of said data lines, and having a control terminal which is connected to a corresponding one of said scanning lines;

a pixel electrode which is provided above said data lines via an insulation film, and is connected to the other end of the electric current path of said switching element;

a common electrode which opposes said data lines via said insulation film, said common electrode having slits in portions overlapping said data lines;

a black matrix which is arranged on a second of said pair of substrates in a predetermined pattern, said black matrix being covered by a flattening film; and

a first conductive film provided on said flattening film so as to oppose said data lines via said slits, said first conductive film being set to a common electric potential with said common electrode;

wherein said first conductive film overlaps said portions of said common electrode where said slits are formed;

wherein an electric field can be generated between said common electrode and said pixel electrode;

wherein at least some portions of said common electrode that are adjacent to said slits overlap at least some portions of said data lines; and

wherein a portion of said black matrix that is located opposite a data line of said plurality of data lines has a width that is **less than a width of said data line** and that is **at least slightly larger than a width of a slit** in a portion of said common electrode that is overlapping said data line.” (Emphasis Added).

It is noted that independent claim 1 has been amended with a feature similar to a feature that was previously in dependent claim 9.

An active matrix type liquid crystal display device including the above-quoted features has at least the advantages that: (i) a plurality of data lines and a plurality of scanning lines are arranged so as to intersect each other on one surface of a first of a pair of substrates; (ii) a pixel electrode is provided above the data lines via an insulation film; (iii) a common electrode opposes the data lines via the insulation film and has slits in portions overlapping the data lines; (iv) a black matrix is arranged on a second of the pair of substrates in a predetermined pattern; (v) at least some portions of the common electrode that are adjacent to the slits overlap at least some portions of the data lines; and (vi) a portion of the black matrix

that is located opposite a data line of the plurality of data lines has a width that is less than a width of the data line and that is at least slightly larger than a width of a slit in a portion of the common electrode that is overlapping the data line. (Specification; paragraphs [0111], [0119], [0131], [0132], [0137], and [0164]).

By making a portion of a black matrix that is located opposite a data line of a plurality of data lines have a width that is less than a width of the data line, the width of the black matrix can be reduced with respect to, for example, a unit pixel area of the liquid crystal display device and, thus, an aperture ratio can be improved. Furthermore, by making the portion of the black matrix that is located opposite the data line of the plurality of data lines have a width that is at least slightly larger than a width of a slit in a portion of a common electrode that is overlapping the data line, an electric field that leaks through the slit can be terminated by the black matrix. (Specification; paragraphs [0111], [0119], [0131], [0132], [0137], and [0164]).

Neither AAPA, Cha, Choi, nor Shimada, alone or in combination, disclose or suggest an active matrix type liquid crystal display device including the above-quoted features with a portion of a black matrix that is located opposite a data line of a plurality of data lines having a width that is less than a width of the data line and that is at least slightly larger than a width of a slit in a portion of a common electrode that is overlapping the data line.

The Examiner recognizes that, “AAPA fails to disclose that a portion of the black matrix that is located opposite a data line of the plurality of data lines has a width that is less than a width of the data line”. (Office Action; page 4) (Emphasis Added). The Examiner further recognizes that AAPA “does not disclose ... the width of the portion of the black matrix is slightly larger than a width of a slit in a portion of the common electrode that is overlapping the data line.” (Office Action; pages 2-3) (Emphasis Added).

The Examiner then points to Shimada as disclosing “wherein a portion of the black matrix (16) that is located opposite a data line of the plurality of data lines (10) has a width that is less than a width of the data line (W2, W1a).” (Office Action; page 4). Also, the Examiner points to Cha as disclosing “wherein the width of the portion of the black matrix

(120) is slightly larger than a width of a slit in a portion of the common electrode that is overlapping the data line.” (Office Action; page 3).

However, in the device of Shimada, a black matrix 16 has a width W2 that is less than a width W1a of a line 10 and that is less than a width of a slit in a pixel electrode 21 that is above the line 10. (Shimada; FIGs. 4 and 5, references 10, 16, 21, W1a, and W2). Moreover, in the device of Cha, a light-blocking film 120 has a width that is greater than a width of a data line 700 and that is greater than a width of a slit in a secondary common electrode 320 that is above the data line 700. (Cha; FIG. 9, references 120, 320, and 700).

The teachings of Shimada and Cha cannot both be applied to AAPA, because they have opposite teachings. Shimada teaches that a black matrix has a width that is less than a width of a line and that is less than a width of a slit, while Cha teaches that a light-blocking film has a width that is greater than a width of a data line and that is greater than a width of a slit. Picking and choosing individual features of each of the devices of Shimada and Cha can only be done by hindsight reasoning using Applicant’s disclosure.

Furthermore, Choi does not cure the deficiencies with respect to the teachings of AAPA, Cha, and Shimada discussed above, because in the device of Choi, a width of a black matrix 33 located opposite a data bus line 13 has a width that is greater than a width of the data bus line 13. (Choi; FIG. 3). Indeed, Choi explicitly states that, “the black matrix 33 has a wider width than the data bus line 13”. (Choi; column 4, lines 59-60) (Emphasis Added).

Therefore, independent claim 1, as amended, is neither disclosed nor suggested by AAPA, Cha, Choi, or Shimada, alone or in combination and, thus, is believed to be allowable. The Patent Office has not made out a *prima facie* case of obviousness under 35 U.S.C. 103.

Independent claim 5, as amended, recites a method of manufacturing an active matrix type liquid crystal display device with features similar to features of an active matrix type liquid crystal display device of independent claim 1 and, thus, is believed to be allowable for at least the same reasons that independent claim 1 is believed to be allowable.

The dependent claims are deemed allowable for at least the same reasons indicated above with regard to the independent claims from which they depend. It is noted that, with regard to dependent claims 2-4 and 7-8, Lin does not cure the deficiencies with respect to the teachings of AAPA, Cha, Choi, and Shimada discussed above.

Conclusion:

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 50-0872. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 50-0872.

If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 50-0872.

Respectfully submitted,

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By Justin M. Sobaje

FOLEY & LARDNER LLP
Customer Number: 22428
Telephone: (310) 975-7965
Facsimile: (310) 557-8475

Justin M. Sobaje
Attorney for Applicant
Registration No. 56,252